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Information Science and Technology Seminar Speaker Series and Data Science at Scale Summer School Speaker Series

Guillaume Belanger
European Space Agency

A Statistical Exploration of the INTEGRAL Data Archive

Wednesday, September 24, 2014

3:00 - 4:00 PM

TA-3, Bldg. 1690, Room 102 (CNLS Conference Room)

Abstract: After nearly 12 years in operations, the INTEGRAL mission has gathered a remarkable wealth of information about the high energy sky. A limited number of population studies and catalogs have been done, but much more can potentially be learnt from this exceptional database both directly and by statistical inference. For example, what is revealed by a systematic search for periodic modulations and characterisation of variability by detailed periodogram analysis across the entire INTEGRAL archive? What kinds of inferences can be made about the total number, spatial distribution and nature of high energy emitters on the basis of a detailed examination of statistical distributions and correlations between various measurables available in the archive? In this work we reveal some of the most deeply hidden and yet scientifically interesting aspects of the INTEGRAL archive, and unveil, on this occasion, a public web portal dedicated to time-domain analysis of INTEGRAL sources.

Biography: Guillaume Belanger is a high-energy astrophysicist working at the European Space Agency on the Gamma-ray mission INTEGRAL. He is Canadian, did his BSc in Physics at McGill in Montreal, his MSc in Particle Physics working on the Forward Calorimeter on ATLAS at Carleton University in Ottawa, and his PhD in High Energy Astrophysics working on the study of the Galactic Centre with INTEGRAL and XMM-Newton data at the University of Paris 7, in France. His interests are wide ranging, but focus on statistical data analysis methods in all domains, but with a particular emphasis in the time domain. His most recent work is a new and very general statistical method for detecting transient phenomena.

For more information contact the technical host Curt Canada, cvc@lanl.gov, 665-7453.

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